



THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

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Project Status Report dated January 10, 2006

(Submitted to The Reclamation Board for the January 27, 2006, meeting)

A progress report of the various phases of the Three Rivers Levee Improvement Authority (TRLIA) project is provided in the followings sections of this document. This document also includes a report on the performance of the Reclamation District 784 (RD 784) levees through the period between December 26, 2005 and January 3, 2006 when heavy rainfall, compounded with increased releases from reservoirs on the Bear, Feather and Yuba rivers led to sustained, high flows on these rivers.

Levee Design and Construction Work

Phase 2 Levee Repair - Bear River Station 131 and easterly, Western Pacific Interceptor Canal and Yuba River from just east of Highway 70 to the Union Pacific Railroad embankment: As reported in the December 2005 status report, a major portion of the improvement work on the Bear River and WPIC levees was completed between September and December 2005, following which, the improvement work was stopped and erosion protection measures placed on the slopes to protect them from the winter rains. The improvement work is expected to be restarted from April-May 2006. Construction of the seepage berm along the south bank of the Yuba River started in August 2005, and has been continuing since then. Approximately 80 percent of the portion of the sand berm has been constructed to date.

Phase 3 Construction – Bear River Setback Levee between the Feather River Levee and the limit of Phase 2 construction: Construction of the work pad, excavation and backfilling of the inspection trench and construction of the slurry wall have been completed. The remainder of this phase of the setback levee construction work entails installing two relief wells near the western tie-in. This work was expected to be completed by December 2005. However, the recent storm event resulted in a significant rise in the groundwater level in the vicinity of the area where the wells are to be installed. To minimize problems during, and related to well installation, the project team deemed it prudent to defer the installation work by one or two weeks to allow for a drop in the groundwater level. The team feels that a 2-3 feet drop in the groundwater level will be sufficient, and will allow for the commencement of well installation.

Phase 4 – Feather River Levee between Bear and Yuba Rivers, Yuba River levee between the Union Pacific Railroad embankment and the Goldfields: In a meeting on December 14, 2005, the TRLIA Board retained the engineering consulting firms of HDR and GEI to carry out design studies for Phase 4 of the TRLIA project. HDR has been entrusted with the section of the Yuba River levee between the Union Pacific Railroad and

the Goldfields, while GEI's responsibility is the east bank Feather River levee between the Bear and Yuba rivers. The scope of work for both firms include undertaking a detailed study of the respective levee sections, identifying problem areas, evaluating engineering levee repair/remedial alternatives and environmental mitigation requirements, coordinating with agencies for review and acceptance of plans as well as to obtain necessary permits, and preparing design and construction plans. The firms have started their work, and the initial results of their study are expected during the fall of 2006.

Performance of RD 784 Levees during the recent increased-flow event

The RD 784 levees (left-bank levees of the Yuba and the Feather Rivers, and the right-bank levees of the WPIC and the Bear River) performed satisfactorily through the period between December 26, 2005 and January 3, 2006 when heavy rainfall, compounded with increased releases from reservoirs on the Bear, Feather and Yuba rivers led to sustained, high flows on these watercourses. While some minor damage was noticed at certain sections of the levees, at no point did the increased water load and storm conditions undermine the integrity of any of these levees. RD 784 staff is carrying out a detailed reconnaissance survey of the levees to ascertain the extent of damages.

Initial surveys carried out by RD 784 staff did not reveal any damage to the Yuba River left-bank levee and the Bear River right-bank levee, even though the Bear reportedly experienced record-high flows.

Some small sand boils were observed at three locations along the Feather River left-bank levee, in the vicinity of Pump Station 3. One of these was observed along the bottom of the slough leading to the pump station, while the other two were located approximately 200 feet east (i.e., landside) of the levee toe, within an orchard to the south of the pump station. This area has been known to exhibit this phenomenon (i.e., sand boils resulting from underseepage through porous levee foundation materials) in the past. The 1997 Feather River floods were the result of a breach of the Feather River levee in this area, due to foundation failure triggered by underseepage-related loss of foundation materials (in the form of sand boils). Following this, in 1998, the United States Army Corps of Engineers (USACE) installed a 75-foot-deep slurry cut-off wall to minimize seepage through and under this section of the levee. The sand boils observed during the current event were minor; however, it appears that additional seepage-arresting/collection measures may be necessary. TRLIA has instructed BE/GEI to undertake a detailed investigation and analysis of this specific area as part of their Phase 4 study.

At a section of the WPIC right-bank levee between Stations 215+00 and 217+00 (north of Plumas Arboga Road), seepage flow was observed through a small hole in the ground located approximately 20 feet west (i.e., on the land-side) of the levee toe. The hole appears to be aligned with a couple of small waterside holes located just above the low water line. RD 784 staff estimated the seepage flow to be in the order of 1.6 gallons/minute during high waters.

Under the guidance of USACE staff, RD 784 is currently carrying out a detailed reconnaissance survey of the aforementioned levees, which will be followed by remedial repair work on affected areas.